This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing f Claims:

1. (presently amended) A high density output array of multiple yeast strains in the haploid state, wherein each ~~resulting~~ yeast strain in the output array contains at least two ~~resulting~~ genetic alterations, and wherein the ~~resulting~~ genetic alterations are different in each ~~resulting~~ yeast strain in the output array, the output array resulting from ~~being~~ the mating ~~product~~ of at least two input arrays containing yeast strains of different haploid mating types, wherein the mating product of the input arrays is an intermediate array containing diploid yeast strains, with the diploid yeast strains then undergoing sporulation to result in the output array containing haploid yeast strains, wherein at least one of the input arrays comprises multiple starting strains of yeast selected from either the *Saccharomyces cerevesiae* or the *Schizosaccharomyces pombe* species and another of the input arrays comprises starting yeast strains carrying a genetic alteration linked to a dominant drug resistant marker, wherein each starting yeast strain carries at least one genetic alteration, with the genetic alteration being different in each starting yeast strain, and further wherein the genetic alterations in the starting strains of yeast selected from either the *Saccharomyces cerevesiae* or the *Schizosaccharomyces pombe* species comprise a deletion mutant .

2-5. (presently cancelled)

6. (presently amended) The ~~input or~~ output array of claim 1, wherein the yeast strains are located on plates, with between about 9 and about 6200 yeast colonies on one plate.

7. (presently amended) The output array of claim 1, wherein at least one of the ~~resulting~~ genetic alterations in the yeast strains in the output array is a double mutant, the double mutant involving a mutation of two different endogenous yeast genes.

8. (original) The output array of claim 7, wherein the double mutant carries the deletion of two different non-essential yeast genes.

9. (original) The output array of claim 8, wherein the double mutant is either a synthetic lethal double mutant or a synthetic fitness double mutant.

10. (presently amended) The output array of claim 1, which comprises between about 1,000 and about 25 million ~~resulting~~ strains of yeast.

11-72 (presently cancelled)

73. (new) The output array of claim 1, wherein the genetic alteration linked to a dominant drug resistant marker is selected from the group consisting of introduction of genes coding for an aptamer, introduction of a protein-protein interaction detection system, expression of a heterologous gene from a viral, prokaryotic, or eukaryotic genome, with the heterologous gene either having or not having a yeast homolog, transfection with a promoter operably linked to a reporter gene, and mutation or deletion of an endogenous yeast gene.

74. (new) The output array of claim 73, wherein the aptamer is either a peptide aptamer or a nucleic acid aptamer.

75. (new) The output array of claim 74, wherein the aptamer performs a function selected from the group consisting of inhibiting expression of a gene, increasing expression of a gene, inhibiting protein-protein interactions, enhancing protein-protein interactions, inhibiting the activity of a protein, and enhancing the activity of a protein.

76. (new) The output array of claim 73, wherein the protein-protein interaction detection system is selected from the group consisting of a yeast two-hybrid system, the Ras recruitment system, the split ubiquitin system, and protein fragment complementation systems.

77. (new) The output array of claim 73, wherein the heterologous gene is a human gene.

78. (new) The output array of claim 77, wherein the human gene comprises a set of alleles, each differing by one or more SNPs.

79. (new) The output array of claim 1, wherein the starting yeast strains carry selectable markers to permit efficient recovery of haploid spore progeny.

80. (new) The output array of claim 79, wherein the selectable markers are mating type specific promoters which permit selection of particular haploid mating types.

81. (new) The output array of claim 1, wherein the genetic alterations in the starting yeast strains further comprise a genetic tag.

82. (new) The output array of claim 81, wherein the genetic tag is a unique 20mer oligonucleotide sequence.